

## Regarding “Risk Factors for Immediate and Delayed-Onset Fever After Percutaneous Transhepatic Biliary Drainage”

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We read with great interest the recent article by Lucatelli et al. [1]. They raised an important issue on the risk factors for fever development after percutaneous transhepatic biliary drainage (PTBD). A total of 30 risk factors were analyzed in this study. However, many important risk factors were not involved in this study.

It is well known that the incidence of fever was higher in patients who underwent internal-external PTBD than external PTBD due to retrograde infection [2]. The factors, including malignant tumor (especially, the pancreatic cancer and duodenal tumors), incomplete duodenal obstruction, gastrointestinal underpowered, and constipation, all have close relationship with the bile reflux, which may induce to cause retrograde infection [2, 3]. Also, many pancreatic cancer patients have both biliary and incomplete duodenal obstruction [4, 5]. Those factors may increase the incidence of fever after internal-external PTBD, which may bias the results.

### Compliance with Ethical Standards

**Conflicts of Interest** Xiaocheng Gu, Kai Wang, and Zhongzhi Jia declare that they have no potential conflicts of interest.

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